DT MEDIUM TERM PLAN (MTP) YEAR 2 2023-2024: Taught 2nd Half of each term

DT MTP Y2	Autumn 2: 5 LESSONS		Spring 2: 5 LESSONS		Summer 2: 5 LESSONS	
	Topic Title: Structures – Baby bear's chair **Key knowledge:** • To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily. **Key Skills:** • Generate and communicate ideas using sketching and modelling. • Learn about different types of structures, found in the natural world and in everyday objects. • Make a structure according to design criteria. • Create joints and structures from paper/card and tape. • Build a strong and stiff structure by folding paper. • Explore the features of structures. • Compare the stability of different shapes. • Test the strength of their structures.		**Topic Title: mechanisms – Fairground wheel** **Key knowledge:** • To know that different materials have different properties and are therefore suitable for different uses. • To know the features of a Ferris wheel, include the wheel, frame, pods, a base, an axle and an axle holder. • To know that is it important to test my design as I go along so that I can solve any problems that may occur. **Key Skills:** • Select a suitable linage system to produce the desired motion. • Design a wheel. • Select appropriate materials based on their properties. • Select appropriate materials based on their characteristics. • Follow a design brief. • Evaluate different designs. • Test and adapt a design. **Key vocabulary:** design, wheel, pods, axle holder, design criteria, Ferris wheel, axle, frame, mechanism		**Topic Title: mechanisms – Making a moving monster** **Key knowledge:** • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and an output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers. **Key Skills:** • Create a design criteria for a moving monster as a class. • Design a moving monster for a specific audience in accordance with a design criteria. • Make linkages using card for levers and split pins for pivots. • Experiment with linkages adjusting the widths, lengths and thicknesses of card used. • Cut and assemble components neatly. • Evaluate own designs against design criteria. • Use peer feedback to modify a final design. **Key vocabulary:** axle, input, mechanical, pivot, design criteria, linkage, output, wheel	

	• Identify the weakest part of a structure. • Evaluate the strength, stiffness and stability of their own structure. **Key vocabulary:** design criteria, natural, structure, shape, man-made, properties, stable, model, test					
Lesson 1	**Lesson objective (s):** To explore the concept and features of structures and the stability of different shapes. **Brief outline of main tasks:** Children will use a scientific approach to test the stability of 3D shapes that they have moulded themselves, and explore man-made and natural structures.		**Lesson objective (s):** To explore wheel mechanisms and design a wheel. **Brief outline of main tasks:** Children will recap how wheels work, evaluate existing big wheels and create a design for their own fairground wheel.		**Lesson objective (s):** To look at objects and understand how they move. **Brief outline of main tasks:** Children will look at everyday objects, children learn that a lever is something that turns on a pivot and that a linkage is a system of levers that are connected by pivots.	
Lesson 2	**Lesson objective (s):** To understand that the shape of the structure affects its strength.		**Lesson objective (s):** To select appropriate materials. **Brief outline of main tasks:**		**Lesson objective (s):** To look at objects and understand how they move. **Brief outline of main tasks:**	

	Brief outline of main tasks: While reinforcing their mathematical vocabulary, children will build different paper structures and then test them to destruction!		Through exploration and experimentation, children will work out the most suitable materials and techniques for creating their wheels.		Children will experiment with making the linkages that will enable their monsters to move, varying the width, length and thicknesses or the card they use and demonstrating to the class the success of these adaptions.	
Lesson 3	**Lesson objective (s):** To design a ship using different materials. **Brief outline of main tasks:** Children need to design a boat and choose from a variety of materials according to their characteristics. They should be appropriate and suit the function of a boat.		**Lesson objective (s):** To build and test a moving wheel. **Brief outline of main tasks:** Using their knowledge of structures, children build their frames and wheels before assembling their fairground rides, adapting their designs as necessary.		**Lesson objective (s):** To explore different design options. **Brief outline of main tasks:** With levers, linkages and pivots in mind, children design two possible moving monster ideas against a set of design criteria and then carry out a tally survey to see which design is favoured by their peers.	
Lesson 4	**Lesson objective (s):** To construct a boat using a range of equipment.		**Lesson objective (s):**		**Lesson objective (s):** To make a moving monster.	

	Brief outline of main tasks: Children to use design from previous lesson to start constructing their boat. They need to select from and use a range of tools and equipment to build their boat.		To make and evaluate a structure and a rotating wheel **Brief outline of main tasks:** Taking care that their Ferris wheels can still rotate freely, children add their pods and final decorative touches.		**Brief outline of main tasks:** Children will construct and assemble their moving monsters, decorating them as specified in their original designs from Lesson 3 and finally evaluating their efforts against their original Design Brief.	
Lesson 5	**Lesson objective (s):** To construct a boat using a range of equipment. **Brief outline of main tasks:** Children to continue constructing their boats.		**Lesson objective (s):** **ASSESSMENT** To explain what I know about constructing a fairground wheel. **Brief outline of main tasks:** Children will work independently to answer questions relating to the areas taught this half term.		**Lesson objective (s):** **ASSESSMENT** To explain what I know about making a moving monster. **Brief outline of main tasks:** Children will work independently to answer questions relating to the areas taught this half term.	

Seasonal projects	**AUTUMN 2 – CHRISTMAS CRAFT – WOVEN PAPER CHRISTMAS TREE** **Lesson objective (s):** To create a woven paper Christmas tree. **Brief outline of main tasks:** Children will create interesting papers and use these to make woven Christmas trees.		**SPRING 2 – EASTER CRAFT – EGG THREADING** **Lesson objective (s):** To independently use fine motor skills to create threaded Easter egg decorations. **Brief outline of main tasks:** Children will apply skills in threading wool; making choices about patterns and colour; creating hanging Easter decorations.			
Stand-alone lessons					**SUMMER 2 – FOOD – HIDDEN SUGARS IN DRINKS** **Lesson objective (s):** To know what makes a balanced diet. **Brief outline of main tasks:**	

					Children will learn how much sugar is in a variety of drinks, including 'healthy' juices, and then categorise different foods into their correct food groups.	